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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,238	12/30/2004	Willem J. Quadakkers	2002P02127WOUS	5095

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Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
Iselin, NJ 08830

EXAMINER
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BALDWIN, GORDON

ART UNIT	PAPER NUMBER
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1775

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/30/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/520,238

Applicant(s)

QUADAKKERS ET AL.

Examiner

Gordon R. Baldwin

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13, 15-17, 19, 20, 24 and 28-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13, 15-17, 19, 20, 24 and 28-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claim 30-32** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 30, the changing of the outer layer zone to having a structure that does not have to be of a pure gamma Ni matrix or ~~not~~ consisting of only a gamma Ni matrix is considered to be new matter, since the specification only describes the use of pure Ni or an outer layer that only consist of gamma Ni.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claim 30** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The conditional language used to describe the outer layer zone is considered to be vague and indefinite because it is unclear whether you are

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claiming this structure, or are you claiming the structure only at 900-1100 degrees.

Because if an outer layer zone that has all of the limitations as claim 30, including the gamma nickel matrix but maybe not at between 900-1100 degrees Celsius, it should be considered to read upon claim 30. The purpose of claiming the temperature range is not understood and is therefore considered vague in the context of how it limits the claimed invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 13, 15-16, 19 and 20, are rejected under 35 U.S.C. 102(b) as being anticipated by Lau (U.S. Pub. No. 2002/0098294).**

**Consider claim 13, 15 and 16,** Lau teaches a coating for turbine engines, with a primary and secondary coating. (Para. 007 and 008) A metal substrate is provided for with a an intermediate or primary layer containing a MCrAlY where the M is selected from a group consisting of Fe, Ni and Co in addition to a secondary or outer layer containing cobalt, chromium, aluminum, yttrium and silicon which is considered to also be an MCrAlY layer with a range of aluminum of 18-55 atomic percent (approximately 11.3-34.5 wt. %) with 30 wt. % specifically being taught in paragraph 76. (Para. 007, 008 and 0011-0014) Lau also teaches that the second layer is thinner than the first coating layer. (Para. 0010)

**Consider claim 19**, Lau teaches that the primary layer has weight percentages within the claims taught by the applicant. (Para. 0073)

**Consider claim 20**, Lau teaches that the outer zone or secondary layer can contain the claimed mounts of silicon. (Para. 0076)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 13, 15-16, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau (Pub. Date 2002/0098294 A1).**

**Consider claim 13**, Lau teaches a substrate, one forming a super-alloy material (Para. 006), with a two layered arrangement on top of the substrate. (Para. 0007-0008) The first layer (or primary layer) is taught to comprise an alloy of the formula MCrAlY, where M is selected from the group consisting of Fe, Ni, Co. (Para. 0007) and the secondary layer, that goes over the primary layer, comprises Nickel, Cobalt and Chromium with 30 wt % of Aluminum. (Para. 0076) While the secondary layer of Lau does not exactly teach the percentage of the applicant the only difference between the applicant and Lau is that Lau does not teach the exact same proportions as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to be obvious, because the compositional proportions taught by Lau overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Additionally, Lau teaches that the secondary layer is in the beta phase of NiAl (Para. 0024) and Lau teaches that the primary or intermediate layer has a greater thickness than the outer or secondary layer. (Claims 20 and 21)

**Consider claim 15**, Lau teaches the use of two separate layers in the protective layer structure. (Para. 0007 and 0008)

**Consider claim 16**, Lau teaches that the coatings are to be used in turbine engine components. (Para. 0006)

**Consider claim 19**, Lau teaches that the primary layer can have amounts of Co, Cr, Al, Y and Ni within the percentages taught by the applicant. (Para. 0020) It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges.

**Consider claim 20**, Lau teaches that the outer or secondary layer can contain silicon. (Para. 0016)

**Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lau (Pub. Date 2002/0098294 A1) in further view of Dardi (U.S. Pat. No. 4,615,864)**

**Consider claim 17**, Lau teaches the claimed invention except that Lau does not specifically teach a graded composition of the protective layers. However, Dardi teaches the use of a two layered MCrAlY graded coating. (Col. 5 lines 1-20) It would have been obvious to a person of ordinary skill in the art at the time of the invention to have the two protective layers taught by Lau to be graded, as taught in Dardi to reduce the metals operating temperatures.

**Claims 22 ,24, 25, 28, 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau (Pub. Date 2002/0098294 A1) in further view of Khan (Pub. No. 2002/0187336 A1).**

**Consider claim 24**, Lau teaches the oxidation resistant coatings except for the use of Hf, Zr, La, Ce or other Lanthanide group members. However Khan teaches that its coatings (Para 0020) for turbine engine components can contain Zr and/or Hf. (Para. 0015) It would have been obvious to a person of ordinary skill in the art at the time of

the invention to combine the coatings of Lau with the coating of Khan to assist in retaining the alumina forming capabilities of the coatings. (Khan Para. 0018)

Additionally, claim 24 is rejected due to no effective amount of the Lanthanide groups members being claimed. It is not considered patentably distinct to claim elements and not give any amounts to be used, since one molecule of the claimed group intermixed with the coating would not affect the properties of the coating.

**Consider claim 28**, Khan teaches that the TBC thermal barrier coating is to be laid over the bond coating. (Para. 0005)

**Consider claim 29**, Khan teaches the use of a thermal barrier coating however the heat treatment prior to applying the thermal barrier coating in a low oxygen pressure range is considered to be a product –by-process and even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process., (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product (*In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).



***Response to Arguments***

Applicant's arguments with respect to claims 13, 15, 16, 17 19-20,24,28-32, have been considered but are moot in view of the new ground(s) of rejection. Since the final rejection of 10/18/2006 seems to have been made in error and since new aspects of the past references have been found the finality of the prosecution has been reversed and prosecution is being re-opened with this non-final action.

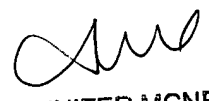
**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon R. Baldwin whose telephone number is (571)272-5166. The examiner can normally be reached on M-F 7:45-5:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GRB

  
JENNIFER MCNEIL  
SUPERVISORY PATENT EXAMINER  
1/20/07